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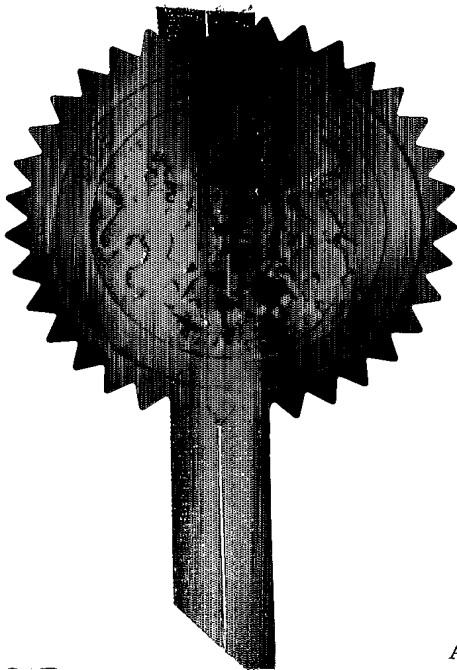
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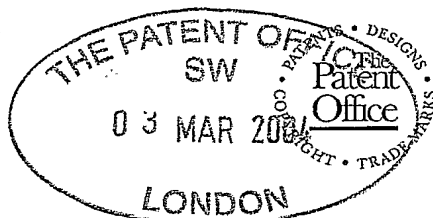
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0404791.6

- 3 MAR 2004

3. Full name, address and postcode of the or of each applicant (underline all surnames)

FISCO TOOLS LIMITED
Brook Road
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ESSEX SS6 7XD

Patents ADP number (*if you know it*)

If the applicant is a corporate body, give the country/state of its incorporation

England

8085466002

4. Title of the invention

TAPE MEASURES

5. Name of your agent (*if you have one*)

"Address for service" in the United Kingdom to which all correspondence should be sent (*including the postcode*)

MEWBURN ELLIS
York House
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Description	13
Claim(s)	4
Abstract	
Drawing(s)	4

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Priority documents

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1

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Signature(s)

Robert Watson

Date 4 March 2004

12. Name, daytime telephone number and e-mail address, if any, of person to contact in the United Kingdom

ROBERT WATSON
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TAPE MEASURES

The present invention relates to tape measures, and in particular to tape measures having a spooled measuring blade
5 and a return spring.

Known tape measures include tape measures having a measuring blade which is spooled within a casing. The measuring blade, which is usually metallic, has at its free end, an
10 end piece. The end piece comprises a part which lies adjacent the measuring blade, an "attachment" portion, and which is usually slidably attached to the measuring blade. The end piece has a further part, a "hook" portion, arranged perpendicularly to the attachment portion, which serves
15 three functions.

Firstly, it prevents the free end of the measuring blade from being spooled into the casing, i.e. it prevents the measuring blade from being completely wound onto the spool.
20 Secondly, the end piece allows the end of the measuring blade to be butted up against a workpiece for 'inside' measurements. Thirdly, it enables the end of the measuring blade to be hooked over the end of a workpiece to allow for measuring a distance on a workpiece by a single person.

In many current tapes the end hook portion extends below the base of the tape casing. This leaves the end hook vulnerable to damage, and consequent loss of accuracy, if dropped. This also leads to the hook portion becoming unintentionally caught on an object and extending the blade from the casing. In most other current tapes the hook portion does not extend a great distance from the measuring blade. Although this avoids some of the mentioned problems, this structure, however, presents its own problem, in that it is difficult to extend the blade from the casing by hooking the hook portion over the end of the workpiece when the measuring blade is fully spooled, as the small part of the hook portion which extends below the bottom edge of the casing is not sufficient to provide a firm grip on the end of the workpiece. If the user is holding the tape measure in one hand, and for example, holding the workpiece in the other hand, they would have to resort to other means for rescinding the blade from the casing. Many users achieve this by gripping the hook portion in their teeth and pulling the end piece away from the casing, thus extending the blade, before applying the brake to the blade, and transferring the tape to the workpiece, all this before continuing with the measuring process.

Some known tape measures address this issue providing extended hook portions on the end piece, but these suffer the disadvantage mentioned above that the longer the hook portion, the greater the risk of it becoming unintentionally caught on objects in use and the bulkier the tape.

An alternative solution to the difficulties discussed above is described in US 6,550,155 where a tape measure without a central spring is wound on a spool such that when the spool is unlocked the blade is automatically extended. This has the disadvantage of requiring a two handed operation to wind the blade back in.

One aim of the present invention is to provide a tape measure which can satisfactorily be used single-handed, especially when it is desired to hook the end piece onto a workpiece, without the disadvantages of the prior art.

Accordingly a first aspect of the present invention provides a tape measure having a case, in which is a spooled measuring blade, the blade being extendable from the case via an opening, the tape measure having a spring which acts to urge the blade back into its spooled configuration, and an end piece at the free end of the measuring blade, wherein the tape measure further comprises means for extending the

blade from the case without applying a pulling force to the end piece or end of the blade.

A tape measure according to the invention enables a user to extend the blade without pulling on the end piece, and as discussed in the embodiments below, enables single-handed use of a tape measure and avoids the use of an extended hook portion of the end piece.

10 In a first embodiment of the first aspect of the invention, the means for extending the blade are means for driving at least one of the discs on which the measuring blade is spooled in a direction to extend the blade from the casing.

15 These driving means may be provided by extending one of the discs on which the blade is spooled such that it extends through an aperture in the case, ie. the diameter of one of the discs is such that at least part of its circumferential edge is exposed outside the tape measure case.

20

Alternatively, the driving means may comprise a thumbwheel mounted in the case, which thumbwheel can drive one of the discs on which the blade is spooled. The thumbwheel may be located such that it is always linked to the disc, so that
25 when one rotates, the other also rotate. In alternative

embodiments, the thumbwheel may be movable between two positions, in one of which it is linked to the disc, and in the other of which it is not linked to the disc. Typically, the thumbwheel would be biased to the non-linked position, for example, by a coil or leaf spring, such that it may be linked to the disc by the application of gentle pressure.

In either of the above described embodiments, the thumbwheel may directly engage the disc, by way of meshing teeth on the thumbwheel and on the disc. Alternatively, the engagement may be by way of one or more intermediate gear cogs. Such an engagement arrangement can allow for a gearing advantage to be provided between the thumbwheel and the disc.

In a second embodiment of the first aspect of the invention, the means for extending the blade are windows in the casing which provide direct access to the spooled blade, by which access the user can advance the blade by applying a force directly to the spooled measuring blade.

In this embodiment it is preferred there is at least one window in the casing, although there may be two or more such windows. These windows would normally be provided in the edges of the cases. Tape measures of the present invention can be defined as having front and back faces, which faces

are positioned either side of the spooled measuring blade.

These two faces are linked by edges of the case, which can

be defined as follows. The bottom edge of the case is that

which runs parallel to the direction of extension of the

5 measuring blade from the case. The other edges of the tape

may be arranged such that the tape is cuboid, but of

particular interest in the present application are edges

which to some degree follow the circumference of the

measuring blade when completely spooled. In such a case, at

10 least two of the edges may merge into one another without a

clear distinction between them. The front edge of a tape is

usually the edge from which the blade is extended, opposite

to which is the rear edge. The top edge is opposite the

bottom edge.

15

It is particularly convenient for at least one window to lie

on either the front or top edges of the casing, i.e. on the

edge of the casing which is directly above the opening from

which the blade extends, or the edge of the casing which is

20 generally parallel to the direction of the extension of the

blade, but spaced from the extending blade.

The length of this at least one window, the length being

measured around the circumference of the spooled blade, is

25 preferably at least 3 cm, more preferably at least 5 cm.

Such a distance allows the blade to be advanced by the users in a single motion before the hook portion of the end piece is hooked over the end of a workpiece.

5 In a particularly preferred embodiment of the invention, the portions of the casing which have windows in follow the circumference of the spool on which the measuring end is spooled. This allows easy access for the user to the spooled blade.

10

The width of the at least one window is preferably less than the width of the spooled measuring blade, but may be wider.

15

The second embodiment of the first aspect of the present invention as discussed above has other advantages in addition to those set out, and accordingly the second aspect of the invention provides a tape measure having a case, within which is a spooled measuring blade, the blade being extendable from the case via an opening, the tape having a spring which acts to urge the blade back into its spooled configuration, and the end piece at the free end of the measuring blade, wherein the tape measure further comprises at least one window in the casing allowing access to the spooled measuring blade.

20

25

The preferred embodiments of this aspect are as discussed above, for the second embodiment of the first aspect.

The tape measure of the present invention may have further
5 features which are typically found in tape measures, such as a cam brake which acts directly or indirectly on the measuring blade.

Preferred embodiments of the present invention will now be
10 described, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view from the front of a tape
measure according to an embodiment of the invention;

15

Fig. 2 is a perspective view from behind of the tape measure of Fig. 1;

Fig. 3 is a schematic partial section view of one half of
20 the tape measure of Fig. 1;

Fig. 4 is a schematic partial section view of one half of the tape measure according to Fig. 1;

Fig. 5 is a view of the right edge of an alternative tape measure according to an embodiment of the invention;

Fig. 6 is a schematic partial section of one half of the
5 tape measure of Fig. 5; and

Fig. 7 is a perspective view of the half of the tape measure according to Fig. 6.

10 Figs. 1 and 2 show a complete tape measure which has a case 1, which is made from injection moulded plastics material, such as high impact ABS. The casing 1 is made of two parts 1a and 1b (only one part (1b) being shown in Figs. 3 and 4), the tape measure being constructed by subsequently fitting
15 the two parts together by connection points 16, 17 and 18.

The tape measure includes a central mounting post 13 which post projects from a central region of the inner surface of the side wall of one part of the case, 1b. During assembly
20 of the tape measure, the return spring (not shown) is connected to the centre post 13. The measuring blade 2 is connected to the other end of the return spring. The measuring blade 2 is then spooled onto discs 24 which are rotatably mounted on the centre post 13.

In use, the blade 2 is drawable from the tape measure via opening 14 in the case 1. The blade passes over a blade engagement wall (brake pad) 33 on its way out of the case. At the end of the blade is an end piece 21, which comprises attachment portion 22 running adjacent the blade 2, and a hooking portion 23, which extends perpendicularly to attachment portion 22. This hook portion prevents the blade 2 being completely spooled on the discs 24 by the return spring (not shown).

10

The tape measure includes an optional brake which comprises handle 31 mounted on the outside of the front half of the casing 1a, and a cam 32 mounted on the inside of the casing 1. The handle 31 can alternatively be mounted on the outside of the back half of the casing 1b. The brake handle 31 and cam 32 are pivotable about an axis such that the cam 32 can be distanced from the blade 2 as shown in Fig. 3, or be rotated into engagement with the blade as shown in Fig. 4, so as to trap the blade 2 against the brake pad 33. This enables the blade to be braked in any position for easy measurement.

20

To prevent damage to the casing 1 and end piece 21 when the blade 2 is being returned to its spooled position, a bump stop 19 is provided in the lower wall of the casing 1. This

25

bump stop comprises an end surface 19a and a spring portion 19b which absorbs the force of the returning end piece 21.

The casing 1 has two windows in its edges (side walls), 11 and 12. Window 11 is located such that when the tape measure is gripped in a user's hand their thumb lies on top of this window, and can be used to extend the blade 2 from the casing 1 via opening 14 without applying a direct force to the end piece 21. This extension is accomplished by the user's thumb engaging the spool tape measure at the bottom end of window 11, and drawing their thumb, or other digit, backwards towards the back end of the window 11.

A smaller window 12 is provided opposite window 11. The window 11 is located in a ergonomically correct position whilst working on a bench, whereas the window 12 is more accessible whilst working overhead.

These windows may serve other purposes than providing means for extending the tape measure from the casing. For example, information could be provided for printing on the reverse surface of the blade 2 (i.e. the surface not carrying the measuring marks) which would then be visible in the windows. This information can be conversion tables, weights and measures, jokes, advertising or branding, which

may be indexed by reading the relevant length at the mouthpiece. For instance 3.5m to 4m could have conversion tables, and 4m to 4.5m could be 'solution of right angled triangles - tan, sin, cosin etc'.

- 5 In addition, the windows 11 and 12 allow the return program of the blade 2, carried by the return spring (not shown), to be slowed or halted, for example for taking measurements, by using thumb pressure. This can reduce the need for buttons or levers at various places on the case, which can be
10 difficult to find and operate and give less control.

By provision of the windows 11 and 12, the tape casing 1 is made lighter, and is also cheaper to manufacture as it uses less plastics material.

15

- Fig. 5 shows a complete tape measure which shares many of the features of that of Figs. 1-4, and which are labelled with the same reference numerals. In addition, the tape measure has an aperture 42 in the front part 1b of the
20 casing 1, through which protrudes part of a thumbwheel 41. This thumbwheel is rotatably mounted on a post 43, which is located on the inside of the front part 1b of the casing 1. Figs. 6 and 7 show the tape measure with the front part 1a of the casing 1 removed, but with the thumbwheel 41 and its
25 mounting post 43 retained.

As shown in Figs. 6 and 7, the thumbwheel has a circular projection bearing cog teeth 44 which mesh with cog teeth 46 on a circular projection 45 on one of the spooling discs 24.

5 Thus, rotation of the thumbwheel 41 in the appropriate direction causes rotation of the spooling disc 24 and extension of the measuring blade 2 through the opening 14 in the case 1. The thumbwheel 41 can be used to slow or halt the return progress of the blade 2, caused by the return
10 spring (not shown).

In an alternative embodiment the mounting post 43 is movable with respect to the front part 1a of the casing 1, such that the meshing engagement of cog teeth 44 and 46 is not
15 permanent. The mounting post 43 is biased by a coil or leaf spring into a non-engaged position, and can be caused to be in an engaged position by the application of gentle pressure to the thumbwheel 41. Thus, the thumbwheel 42 does not spin in normal use of the measure.

20

Although, the tape measure shown in Figs. 5-7 has windows 11 and 12, these need not be provided in a tape measure having a thumbwheel.

CLAIMS

1. A tape measure having a case, in which is a spooled measuring blade, the blade being extendable from the case via an opening, the tape measure having a spring which acts to urge the blade back into its spooled configuration, and an end piece at the free end of the measuring blade, wherein the tape measure further comprises means for extending the blade from the case without applying a pulling force to the end piece or end of the blade.

2. A tape measure according to claim 1, wherein the means for extending the blade are means for driving at least one of the discs on which the measuring blade is spooled in a direction to extend the blade from the casing.

3. A tape measure according to claim 2, wherein the driving are an extension of one of the discs on which the blade is spooled such that it extends through an aperture in the case.

4. A tape measure according to claim 2, wherein the driving means comprise a thumbwheel mounted in the case, which thumbwheel can drive one of the discs on which the blade is spooled.

5. A tape measure according to claim 4, wherein the thumbwheel is located such that it is always linked to the disc.

5

6. A tape measure according to claim 4, wherein the thumbwheel is movable between two positions, in one of which it is linked to the disc, and in the other of which it is not linked to the disc.

10

7. A tape measure according to claim 6, wherein the thumbwheel is biased to the non-linked position.

15

8. A tape measure according to any one of claims 4 to 7, wherein the thumbwheel directly engages the disc.

9. A tape measure according to any one of claims 4 to 7, wherein the thumbwheel engages the disc by way of one or more intermediate gear cogs.

20

10. A tape measure according to claim 1, wherein the means for extending the blade are at least one window in the casing which provide direct access to the spooled blade, by which access the user can advance the blade by applying a force directly to the spooled measuring blade.

25

11. A tape measure according to claim 1, wherein there is at least two windows in the casing.

5 12. A tape measure according to either claim 10 or claim 11, wherein the at least one window is provided in the edge of the case.

13. A tape measure according to claim 12, wherein the
10 length of the at least one window, the length being measured around the circumference of the spooled blade, is preferably at least 3 cm, more preferably at least 5 cm.

14. A tape measure according to either claims 12 or claim
15 13, wherein the portions of the casing which have windows in follow the circumference of the spool on which the measuring end is spooled.

15. A tape measure according to any one of claims 12 to 14,
20 wherein the width of the at least one window is less than the width of the spooled measuring blade.

16. A tape measure having a case, within which is a spooled measuring blade, the blade being extendable from the case
25 via an opening, the tape having a spring which acts to urge

the blade back into its spooled configuration, and the end piece at the free end of the measuring blade, wherein the tape measure further comprises at least one window in the casing allowing access to the spooled measuring



1/4

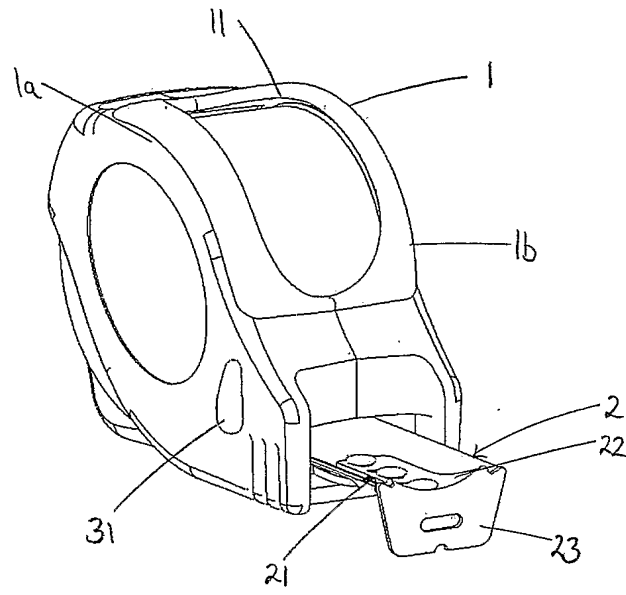


Fig. 1

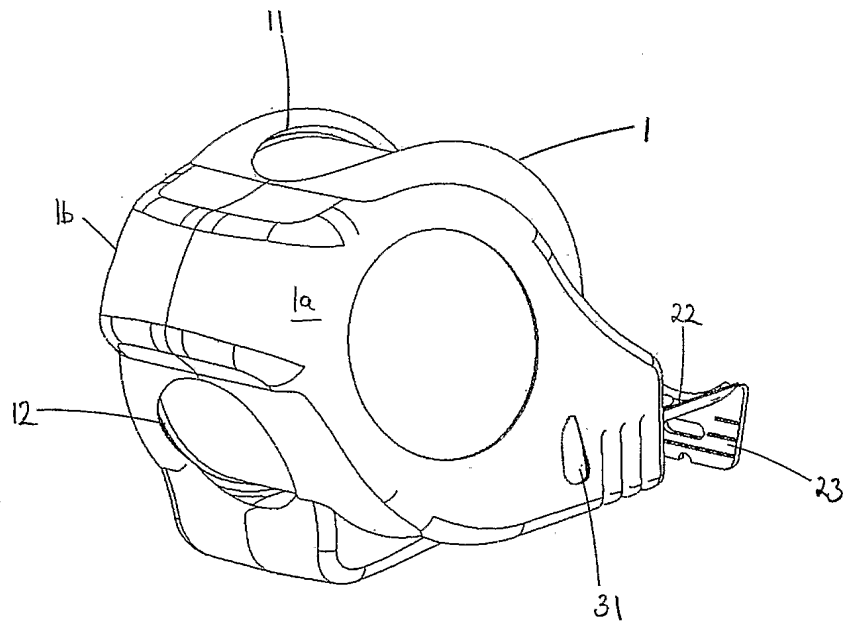


Fig. 2



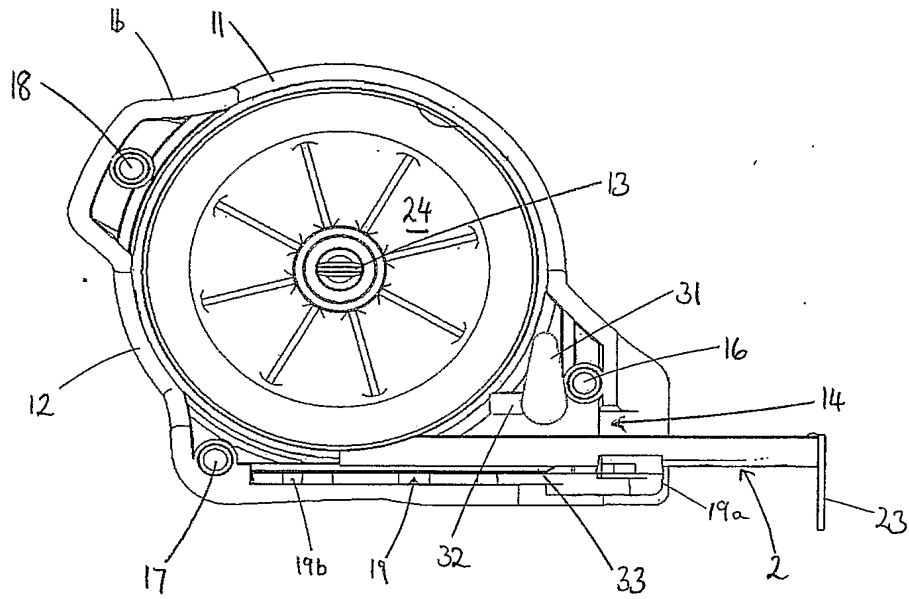


Fig. 3

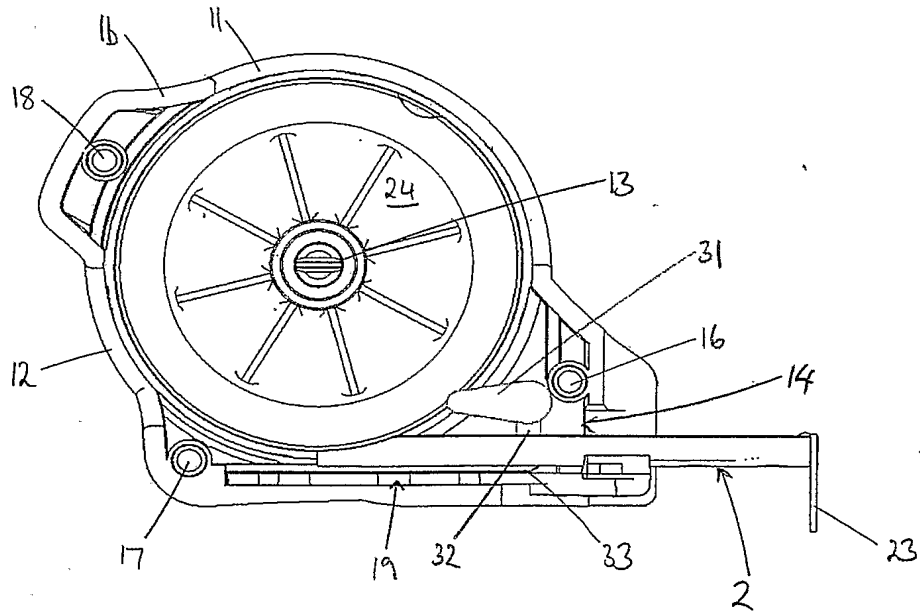


Fig. 4



3/4

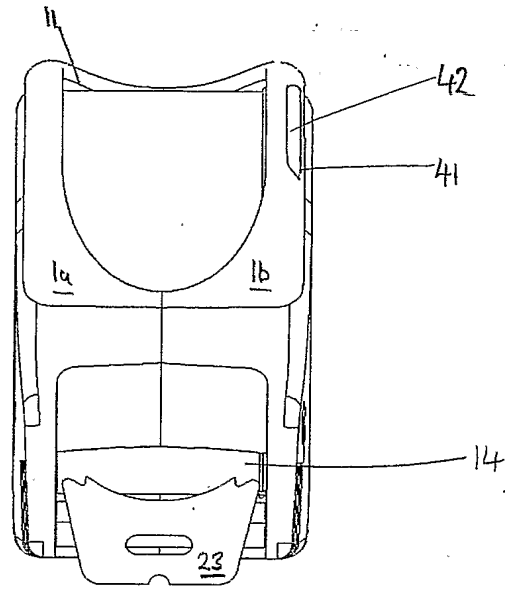


Fig. 5

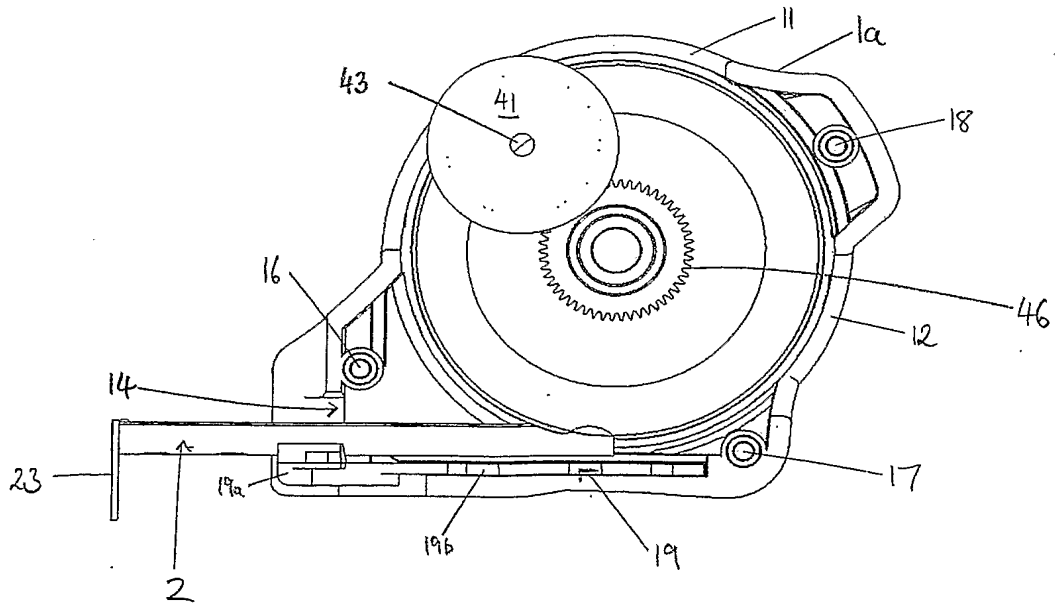


Fig. 6



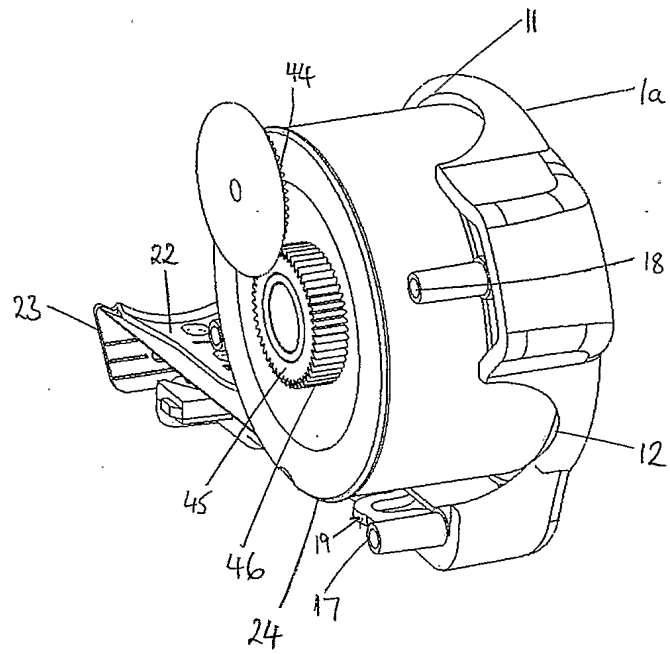


Fig. 7

